

THREE NEW SPECIES OF *HAWORTHIA* (LILIACEAE—ALOINEAE)

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ABSTRACT

Three new species and a variety of *Haworthia* are described. These are *H. bruynsii* Bayer from the Steytlerville area, which belongs in the sub-genus *Hexangulares* Uitewaal ex Bayer; *H. archeri* Bayer and *H. archeri* var. *dimorpha* Bayer from the Touws River—Matjiesfontein areas; and *H. rycroftiana* from the mid-Gouritz river valley.

UITTREKSEL

DRIE NUWE *HAWORTHIA* SOORTE (LILIACEAE—ALOINEAE)

Drie nuwe *Haworthia* soorte en 'n variëteit word beskryf. Dit is *H. bruynsii* Bayer van die Steytlerville-gebied, wat tot die subgenus *Hexangulares* Uitewaal ex Bayer behoort; *H. archeri* Bayer and *H. archeri* var. *dimorpha* Bayer van die Touwsrivier—Matjiesfontein area; en *H. rycroftiana* van die middel-Gouritzrivier vallei.

Haworthia bruynsii Bayer, sp.nov. (Liliaceae—Aloineae)

Rosula acaulescente, 40–70 mm diam. foliis usque ad 11. *Caule* usque ad 20 mm diam., non prolifante. *Foliis* erectis, usque ad 30 mm in longitudine, 14 mm in latitudine, 10 mm in crassitie cum area extremitatis truncata, obtusa; *ventrale pagina* leviter concava, brunnea-viride, laeve non lineata, supra tuberculis pallidis roseis, area truncata et marginibus scabris, opaca usque ad 3 striolis roseis pallidis; *dorsale pagina* convexa, nonlineata, brunnea-viride apice roseis papillatis, carinata minute; *marginibus* acutis, integris. *Pedunculo* singulare, 1–1.5 mm diam., 250–450 mm in longitudine cum racemo, cano-brunneo; *racemo* 150–250 mm in longitudine, 9–23 floribus fere secundis, 2–4 simul apertis; *Perianthio* cano-viride et albo, 15 mm longo, perigonio rotundo, segmentis superis-exterioribus rectis, segmentis interioribus-inferioribus cum marginibus involutis et recurvis apicibus expansis, *tubo* pallide viride; *gemma* angusta, recta, decurvata apice leviter.

Rosette acaulescent, 40–70 mm diam., up to 11 leaves. *Stem* up to 20 mm diam., non-proliferous. *Leaves* erect up to 30 mm long, 14 mm wide, 10 mm thick with truncated, obtuse end-area; *face* slightly concave, brownish-green, smooth unlined, pinkish tubercles above, truncated area and margins scabrid,

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FIG. 1.
Haworthia bruynsii Bayer.

opaque with up to 3 inconspicuous pinkish longitudinal lines; *back* convex, unlined, brownish-green, with apical pinkish tubercles, minutely keeled at apex; *margins* acute, entire. *Peduncle* single, 1–1.5 mm diam., 250–450 mm long including raceme, greyish-brown; *raceme* 150–250 mm long, with 9–23 nearly secund flowers, 2–4 open at a time, petioles 3–5 mm long. *Perianth* greyish-green and white, 15 mm long, perigon rounded, upper-outer segments straight, inner-lower segments with involuted margins and recurved, tips flared, *tube* pale green, *bud* narrow, straight, slightly down-curved at tip. *Flowering* December–January.

Type: CAPE—3324 (Steytlerville): 20 km south-east of Steytlerville, *G. J. Rossouw* 456 (NBG, holo.).

This is a most remarkable species particularly in respect of its flower. When first collected by Mr P. V. Bruyns after whom it is named, the single plant was considered perhaps to be an ecotypic variant of *H. springbokvlakensis* Scott. The latter species is itself remarkable as it is the most easterly of the “retuse” species in the sub-genus *Haworthia* Uitewaal ex Bayer. It is found east of Steytlerville, and although its flower is very similar to that of *H. comptoniana* Smith

and *H. emelyae* v. Poelln. at Georgida and Uniondale respectively, there appears to be no intermediate population. The origin and identity of *H. willowmorensis* v. Poelln. is very dubious and unlikely to be resolved.

Thus the collection of *H. bruynsii*, west of *H. springbokvlakensis*, and belonging in the sub-genus *Hexangulares* is extraordinary. The flowers are practically secund, the florets are widely spaced on a relatively slender, wiry peduncle, the margins of the outer perianth lobes are well-separated and, fused with the outer surfaces of the inner perianth lobes. The perianth base is regularly 6-sided and the tube is straight. The species which occur in the same general area are *H. viscosa* (L.) Haw., *H. nigra* (Haw.) Baker, *H. woolleyii* v. Poelln., *H. sordida* (Haw.), *H. glauca* Baker var. *herrei* (v. Poelln.) Bayer (in the sub-genus *Hexangulares*) and *H. decipiens* v. Poelln., *H. springbokvlakensis* and *H. zantneriana* v. Poelln. (sub-genus *Haworthia*). There is nothing to suggest that it is a hybrid and its occurrence in at least two distinct, discrete populations discounts this as well. The locality of Steytlerville is possibly at the epicentre of distribution of the genus, and the oddity of the species may be relevant to the origin of the sub-genera.

OTHER SPECIMENS EXAMINED

CAPE—3324 (Steytlerville): 10 km south-east of Steytlerville, G. J. Rossouw 450 (NBG).

Haworthia archeri W. F. Barker ex M. B. Bayer, sp. nov. (Liliaceae—Aloineae)

Rosula acaulescente, 40–60 mm diam., *foliis* usque ad 120. *Caule* usque ad 10 mm diam., non proliferante. *Foliis* expansis usque ad erectis, usque ad 26 mm longis, 5 mm latis, 2 mm crassis, apicibus incurvis, arista apice 2 mm longa; *ventrale pagina* convexa, armata 1–2 seriebus dentium minorum in triente supero; *dorsale pagina* convexa 1–3 seriebus dentium minorum in dimidio supero; *marginibus* supra dentibus minutis. *Pedunculo* singulare 1–1.5 mm diam., 300–500 mm longo cum racemo, brunneo-viride; *base* laeve perangusta elliptica; *racemo* 10–15 floribus, 3–4 simul apertis; *pedicellis* longis usque ad 7 mm, 1 mm diam.; *bracteis* sterilibus 12–15, 6–7 mm in longitudine. *Perianthio* viride et albo, 16 mm longo, perigonio sub-triangulari, segmentis superis-exterioribus rectis, interioribus-superis fere rectis; *tubo* interno pallido viride; *gemma* apice rotundato.

Rosette acaulescent, 40–60 mm diam., up to 120 leaves. *Stem* up to 10 mm diam., non-proliferous. *Leaves* spreading to erect, up to 26 mm long, 5 mm wide, 2 mm thick, with incurved tips and 2 mm long end-awns; *face* convex with 1–2 rows of minute teeth on upper third; *back* convex with 1–3 rows of minute teeth on upper half; *margins* minutely toothed above. *Peduncle* single, 1–1.5



FIG. 2.
Haworthia archeri W. Barker ex Bayer.

mm diam., 300–500 mm long including raceme, brownish-green; *base* smooth, very narrowly elliptic; *raceme* with 10–15 flowers, 3–4 open at a time; *pedicels* up to 7 mm long, 1 mm diam., *sterile bracts* 12–15, 6–7 mm long. *Perianth* green and white, 16 mm long, perigon sub-triangular, upper-outer segments straight and inner-upper segment nearly so; *tube* pale green inside; *buds* with rounded tip. *Flowering* February.

Type: CAPE—3320 (Montagu): Whitehill (–BA), *J. Archer s.n.*, NBG 68145 (NBG, holo.).

Mr J. Archer, in whose honour this species is named, was the first curator of the Karoo Botanic Garden from when it was founded at Whitehill near Laingsburg in 1921.

It had apparently never been re-collected until Mr P. V. Bruyns found it in 1977. It is a small compact brownish-green species apparently belonging in the *H. magnifica* group. However, this latter species is a constituent of the south-western Cape complex. Although comprised of highly localised, variable and

intergrading elements, *H. magnifica* v. Poelln. can be defined in geographical terms. *H. magnifica* is also recognised by its 'fish-tail' tips to the buds. It is not known north of the Langeberg mountains except at Garcia's Pass, Barrydale and Montagu. *H. archeri* does not have the flowers typical of its south-western Cape relatives and is separated from *H. magnifica* by the wide valley of the Touws River, and the very broken country of the Warmwaterberg, Anysberg and Witteberg ranges. Epidermal structure has not been studied in this group but the cells are sharply papillate, compared to the more dome-shaped cells in *H. magnifica*.

Affinity, unlikely as it seems, can only be sought with *H. marumiana* Uite-waal, which is a very widespread species, localised in habitat and generally poorly known. It is known to occur in the Nuweveld Mountains at Beaufort West, across the mountains of the central Karoo to Tarkastad.

A particularly spiny form of *H. arachnoidea* (L.) Duv. occurs together with *H. archeri*. *H. lockwoodii* v. Poelln. is a quite different species occurring together with *H. wittebergensis* Smith about 10 km to the south.

OTHER SPECIMENS EXAMINED

CAPE—3320 (Montagu): Baviaan, W. Laingsburg (—BA), *P. V. Bruyns* 1405 (NBG); Ngaap Kop, W. Laingsburg, *P. V. Bruyns* 1664 (NBG).

Haworthia archeri M. B. Bayer var. **dimorpha** M. B. Bayer, var. nov. (Liliaceae—Aloineae)

Rosula 40–50 mm diam., foliis 15–25, non proliferante. *Foliis* erectis usque ad 40 mm longis, 10 mm latis, 3 mm crassis, arista apice 5 mm longa; *ventrale pagina* convexa dentibus paucis in rotundatis, pellucidis punctis; *dorsale pagina* convexa 1–2 seriebus dentium 1 mm longorum, carinata; *marginibus* dentatibus supra cum albis dentibus translucentibus, 1 mm longis.

Rosette 40–50 mm diam., with 15–25 leaves, non-proliferous. *Leaves* erect up to 40 mm long, 10 mm wide, 3 mm thick with 5 mm long end-awn; *face* convex with a few scattered teeth on rounded clear dots; *back* convex with 1–2 rows of 1 mm long teeth, keeled; margins toothed above with white, translucent 1 mm long teeth.

Type: CAPE—3320 (Montagu): 14 km east of Touws River, *M. B. Bayer* 2092 (NBG, hol.).

Unlike the typical variety which occurs in karroid vegetation on Witteberg quartzites, *H. archeri* var. *dimorpha* occurs in fynbos on Table Mountain sandstone. The name is derived from the extraordinary transformation observed in cultivated specimens. These doubled in size with broad flatter, recurving leaves



FIG. 3.

Haworthia archeri W. Barker ex Bayer var. *dimorpha* Bayer.

and large clear teeth. The affinity with *H. archeri* is deduced from the flower which also has the same straight upper perianth lobes, and from the locality some 30 km to the west of the species. The Touws River area is relatively poor in *Haworthia*. Even *H. venosa* (Lam.) Haw. is very poorly represented by aberrant forms more closely allied to the subspecies, *H. venosa* (Lam.) Haw. subsp. *granulata* (Marloth) Bayer.

H. arachnoidea does occur south of Touws River where identification is in fact a little dubious as here this species is a very dark green somewhat resembling *H. unicolor* v. Poelln. var. *venteri* (v. Poelln.) Bayer. The nearest species geographically is *H. pulchella* Bayer, south-east of Konstabel Station and south of Touws River itself. This species has a rather coriaceous texture and a direct affinity is unlikely.

OTHER SPECIMENS EXAMINED

CAPE—3320 (Montagu): Constable Station, W. Laingsburg (—AD), *H. Hall* sub *G. G. Smith* 7418 (NBG).

Haworthia rycroftiana M. B. Bayer, sp. nov. (Liliaceae-Aloineae)

Rosula acaulescente, 50–80 mm diam., foliis usque ad 50. *Caule* usque ad 12 mm diam., proliferante. *Foliis* erectis, usque ad 50 mm longis, 18 mm latis, 6 mm crassis, apicibus incurvis, arista apice 10 mm longa; *ventrale pagina* convexa, laevigata, inconspice reticulate; *dorsale pagina* convexa, laevigata, supra modice carinata, inconspice reticulate. *Pedunculo* singulare, 2 mm diam., 250–300 mm longo cum racemo brunneo-viride; *base* laeve, 5–7 angulate; *racemo* 12–20 floribus, 3–5 simul apertis; *pedicellis* longis usque ad 7 mm, < 1 mm diam.; *bracteis sterilibus* 7–8, 4–5 mm in longitudine. *Perianthio* brunneo-viride et albo, 13 mm longo, perigonio triangulare, segmentis patentia; *tubo* interno brunneo-viride; *gemma* apice acumen breviate.

Rosette acaulescent, 50–80 mm diam., up to 50 leaves. *Stem* up to 12 mm, proliferous. *Leaves* erect, up to 50 mm long, 18 mm wide, 6 mm thick, with acuminate incurved tips and 10 mm long end-awns; *face* convex, smooth, faintly reticulate; *back* convex; smooth, lightly keeled above, faintly reticulate. *Peduncle* single, 2 mm diam., 250–300 mm long including raceme, brownish-green; *base* smooth, 5–7 angled; *raceme* with 12–20 flowers, 3–5 open at a time; *pedicels* up to 7 mm long, < 1 mm diam.; *sterile bracts* 7–8, 4–5 mm long. *Perianth* brownish-green and white, 13 mm long, perigon triangular, segments spreading; *tube* brownish-green inside; *buds* with short pointed tips. *Flowering* December-January.

Type: CAPE—3321 (Ladismith): Gouritz River between Van Wyksdorp and Herbertsdale (–DC), *M. B. Bayer 1701* (NBG, holo.).

This species is named in honour of Prof. H. B. Rycroft, Director of the National Botanic Gardens of South Africa. *H. turgida* Haw. occurs in the mid-Gouritz River valley and this new species appears to represent an unexpected link between that species and *H. unicolor* v. Poelln. which occurs in the south-western Little Karoo. Both *H. unicolor* v. Poelln. var. *venteri* (v. Poelln.) M. B. Bayer and *H. habdomadis* var. *morristae* (v. Poelln.) M. B. Bayer occur sympatrically 10 km south of Vanwyksdorp (hairy and smooth species respectively), and *H. rycroftiana* has similarities. However, the turgidity of the leaves, the fewer-flowered raceme with more pointed bud-tips, together with its proliferous nature, clearly separate it.